CLAIM AMENDMENTS

Amended claims: 1-8 and added new claims 9 and 10.

1. (Currently Amended) A process for the carbonylation of a conjugated diene, comprising reacting the conjugated diene with carbon monoxide and a co-reactant having an active hydrogen atom in the presence of a catalyst system including:

~~(c)~~(a) a source of palladium; and

~~(d)~~(b) a bidentate diphosphine ligand of formula II,

$$R^1 > P^1 - R - P^2 < R^2R^3 \qquad (II)$$

wherein P^1 and P^2 represent phosphorus atoms;

R^1 represents an optionally substituted divalent organic group linked to the phosphorus atom by two tertiary carbon atoms; and R^2 and R^3 independently represent univalent groups of from 1 to 20 atoms containing a tertiary carbon atom through which each group is linked to the phosphorus atom, or R^2 and R^3 jointly form an optionally substituted divalent organic group containing at least 2 tertiary carbon atoms through which the group is linked to the phosphorus atom;

and R represents a divalent bridging group comprising 3 atoms through which P^1 is linearly connected to P^2; wherein R^1, and/or R^2 and R^3 together represent a 2,2,6,6-tetra-substituted phosphinan-4-one structure, or a 2,2,6,6-tetra-substituted phosphinan-4-thione structure; and

(c) a source of an anion.

2. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, wherein R is an optionally substituted trimethylene group.

3. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 3,~~ wherein the source of anions (c) is a carboxylic acid.

4. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 4,~~ wherein an amount of 3 to 20 mol%, related to the carbon monoxide, of hydrogen is added.

5. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 5,~~ wherein the conjugated diene is 1,3-butadiene or 2-methyl-1,3-butadiene.

6. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 6,~~ wherein the catalyst component(c) is present in a molar ratio to catalyst component (a) in the range of 10^2:1 and 10^4:1.

7. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 7,~~ wherein the reaction temperature is in the range of 50 to 250 °C, the reaction pressure is in the range of ~~0,1~~ 0.1 to 15 MPa, and the carbon monoxide partial pressure is in the range of ~~0,1~~ 0.1 to ~~6,5~~ 6.5 MPa.

8. (Currently Amended) The ~~A~~ process ~~according to~~ of claim 1, ~~any one of claims 1 to 8,~~ wherein the catalyst component is present in an amount below 500 mole atom of palladium per mole of conjugated diene.

9. (New) The process of claim 1, wherein the molar ratio of component (c) to component (a) is between 10^2:1 and 10^4:1.

10. (New) The process of claim 1, wherein the carbon monoxide partial pressure is in the range of 0.1 to 8Mpa.